RAW SEQUENCE LISTING

The Biotechnology Systems Branch of the Scientific and Technical Information Center (STIC) no errors detected.

Application Serial Number: /

Source:

Date Processed by STIC:

ENTERED



IFWP

RAW SEQUENCE LISTING DATE: 02/02/2007
PATENT APPLICATION: US/10/583,093A TIME: 11:53:20

Input Set : A:\MERK3179.APP

```
3 <110> APPLICANT: FIEBIG, HELMUT
         NANDY, ANDREAS
         CROMWELL, OLIVER
 7 <120> TITLE OF INVENTION: DNA SEQUENCE, AND RECOMBINANT PREPARATION OF THE GRASS
         POLLEN ALLERGEN LOL P 4
10 <130> FILE REFERENCE: MERCK-3179
12 <140> CURRENT APPLICATION NUMBER: 10/583,093A
13 <141> CURRENT FILING DATE: 2006-06-15
15 <150> PRIOR APPLICATION NUMBER: PCT/EP04/013663
16 <151> PRIOR FILING DATE: 2004-12-01
18 <150> PRIOR APPLICATION NUMBER: DE 103 59 352.7
19 <151> PRIOR FILING DATE: 2003-12-16
21 <160> NUMBER OF SEQ ID NOS: 27
23 <170> SOFTWARE: PatentIn Ver. 3.3
25 <210> SEQ ID NO: 1
26 <211> LENGTH: 1272
27 <212> TYPE: DNA
28 <213> ORGANISM: Lolium perenne
30 <220> FEATURE:
31 <221> NAME/KEY: CDS
32 <222> LOCATION: (2)..(1270)
34 <400> SEQUENCE: 1
35 t gcc gtg gtg tgc ggc cgc cgt tac gac gtc cgc atc cgc gta cgc agc 49
     Ala Val Val Cys Gly Arg Arg Tyr Asp Val Arg Ile Arg Val Arg Ser
37
                       5
39 ggc ggg cac gac tac gag ggc ctc tcg tac cgc tcc ctg cag ccc gag
                                                                      97
40 Gly Gly His Asp Tyr Glu Gly Leu Ser Tyr Arg Ser Leu Gln Pro Glu
43 aac ttc gca gtc gtc gac ctc aac cag atg cgg gcg gtg ttg gtg gac
                                                                      145
44 Asn Phe Ala Val Val Asp Leu Asn Gln Met Arg Ala Val Leu Val Asp
                                40
47 ggt aag gee ege aeg geg tgg gte gae tee gge geg eag ete gge gag
                                                                      193
48 Gly Lys Ala Arg Thr Ala Trp Val Asp Ser Gly Ala Gln Leu Gly Glu
49
        50
                            55
51 ctc tac tac gcc atc tcc aag tat agc cgc acg ctg gcc ttc ccg gca
                                                                      241
52 Leu Tyr Tyr Ala Ile Ser Lys Tyr Ser Arg Thr Leu Ala Phe Pro Ala
   65
                        70
                                             75
55 ggc gtt tgc ccg acc atc ggc gtg ggc ggc aac ctc gcg ggc ggc ggc
                                                                      289
56 Gly Val Cys Pro Thr Ile Gly Val Gly Gly Asn Leu Ala Gly Gly Gly
                    85
                                        90
59 ttc ggt atg ctg ctg cgc aag tac ggc atc gcc gca gag aac gtc atc
                                                                      337
60 Phe Gly Met Leu Leu Arg Lys Tyr Gly Ile Ala Ala Glu Asn Val Ile
61
               100
                                   105
```

RAW SEQUENCE LISTING DATE: 02/02/2007
PATENT APPLICATION: US/10/583,093A TIME: 11:53:20

Input Set : A:\MERK3179.APP

				ctc													385
64	Asp	Val	Lys	Leu	Val	Asp	Ala	Asn	Gly	Lys	Leu	His	Asp	Lys	Lys	Ser	
65			115					120					125				
67	atg	ggc	gac	gac	cat	ttc	tgg	gcc	gtg	agg	ggt	ggc	ggc	ggc	gag	agc	433
68	Met	Gly	Asp	Asp	His	Phe	Trp	Ala	Val	Arg	Gly	Gly	Gly	Gly	Glu	Ser	
69		130					135					140					•
71	ttc	ggc	atc	gtg	gtc	tcg	tgg	cag	gtg	aag	ctc	ctg	ccg	gtg	cct	CCC	481
72	Phe	Gly	Ile	Val	Val	Ser	Trp	Gln	Val	Lys	Leu	Leu	Pro	Val	${\tt Pro}$	Pro	
73	145					150					155					160	
75	acg	gtg	acc	atc	ttc	aag	atc	ccc	aag	tca	gtc	agc	gag	ggc	gcc	gtg	529
76	Thr	Val	Thr	Ile	Phe	Lys	Ile	Pro	Lys	Ser	Val	Ser	Glu	Gly	Ala	Val	
77					165					170					175		
79	gac	atc	atc	aac	aag	tgg	caa	ctg	gtc	gcg	cct	caa	ctt	ccc	gcc	gac	577
	_			Asn											_		
81	_			180	_	_			185					190		_	
83	ctc	atg	atc	cgc	atc	att	gcg	atg	ggg	ccc	aag	gcc	acg	ttc	gag	gcc	625
				Arg													
85			195	_				200	_		_		205				
87	atg	tac	ctc	ggc	acc	tgc	aaa	acc	ctg	acg	ccg	atg	atg	cag	agc	aag	673
	_			Gly		_			_	_	_	_	_	_	_	_	
89		210		_		•	215					220				_	
91	ttc	ccc	gag	ctt	ggc	atg	aac	gcc	tcg	cac	tgc	aac	gag	atg	tca	tgg	721
				Leu													
93	225				_	230					235					240	
95	atc	gag	tcc	atc	ccc	ttc	gtc	cac	ctc	ggc	cat	agg	gat	tcc	ctg	gag	769
96	Ile	Glu	Ser	Ile	Pro	Phe	Val	His	Leu	Gly	His	Arg	Asp	Ser	Leu	Glu	
97					245					250					255		
99	ggc	gac	ctc	ctc	aac	cgg	aac	aac	acc	ttc	aag	CCC	ttt	gcg	gag	tac	817
100	Gly	/ Asp	Lei	ı Lev	Asr	n Arg	J Asr	ı Asr	Thr	Phe	E Lys	s Pro	Phe	e Ala	a Glu	ı Tyr	
101				260)				265	5				270)		
103	aaa	tcg	g gad	c tac	gto	tac	gag	g cca	tto	ccc	aag	g ago	gtg	g tgg	g gag	g cag	865
104	Lys	Se:	Asp	Tyr	· Val	Туг	Glu	Pro	Phe	Pro	Lys	s Sei	r Val	l Trp	Glu	ı Gln	
105	;		275	5				280)				285	5			
107	ato	: ttc	ggg	c acc	tgg	cto	gtg	gaag	cct	ggt	gcg	g gg	g att	ato	g ato	ttt	913
108	$I1\epsilon$	Phe	e Gly	7 Thr	Trp	Leu	ı Val	. Lys	Pro	Gly	/ Ala	a Gly	/ Ile	e Met	: Ile	e Phe	
109)	290)				295	5				300)				
111	. gad	ccc	tac	ggt	gco	acc	ato	ago	gct	aco	c cca	a gaa	a gcg	g gcg	g acq	gccg	961
112	Asp	Pro	Туз	Gly	Ala	Thr	: Ile	Ser	Ala	ı Thi	r Pro	Glu	ı Ala	a Ala	a Thi	r Pro	
113	305	;				310)				315	5				320	
115	ttc	: cct	cac	cgc	aag	g gga	gto	cto	ttc	aac	ato	cag	g tac	gto	aac	c tac	1009
116	Phe	Pro	His	arg	Lys	Gly	v Val	Let	Phe	. Asr	ı Ile	e Glr	туз	c Val	Ası	ı Tyr	
117	'				325	5				330)				335	5	
119	tgg	tto	gct	ccg	gga	gco	ggc	gcc	gcg	ccc	ttg	g tca	a tgg	g ago	aag	g gaa	1057
120	Trp	Phe	e Ala	a Pro	Gly	/ Ala	ı Gly	Ala	Ala	Pro	Lei	ı Sei	r Tr	Sez	Lys	s Glu	
121				340	1				345	;				350)		
123	ato	: tac	aac	tac	ato	gag	CCS	tac	gtg	gago	aag	g aac	c ccc	agg	cag	g gcc	1105
																n Ala	
125	;		355	5				360)				365	5			
127	tac	gco	aac	c tac	agg	gad	: atc	gac	cto	ggg	gagg	g aad	gag	ggtg	gt	g aat	1153

RAW SEQUENCE LISTING DATE: 02/02/2007
PATENT APPLICATION: US/10/583,093A TIME: 11:53:20

Input Set : A:\MERK3179.APP

128	Tvr	Ala	Asn	Tvr	Ara	Asp	Ile	Asp	Leu	Glv	Ara	Asn	Glu	Val	Val	Asn	
129	-1-	370		-7-	5		375			0-1	5	380					
	aac	-	t.cc	acc	tac	agc	agt	ggt	aaσ	atc	t.aa		cag	aaa	tat	ttc	1201
								Gly									
	385				-1-	390		1	-1 -		395	1		-2	- 4 -	400	
		aat.	aac	ttc	gag		ctc	gcc	att	acc		aac	aaσ	ata	gat		1249
								Ala									
137	-1-	- -1			405	3				410	-1-	0-1	-1-		415		
	acq	gat.	tac	ttc		aac	gag	ca									1272
	_	_				Asn											
141		<u>F</u>	-1-	420	5												
	<210	0> SI	EO II		: 2												
	144 <210> SEQ ID NO: 2 145 <211> LENGTH: 423																
			YPE:														
					Lol	ium p	pere	ne									
				ICE:													
						Ara	Arq	Tyr	Asp	Val	Arq	Ile	Arq	Val	Ara	Ser	
151	1			- 1	5			1		10					15		
		Glv	His	Asp	Tvr	Glu	Gly	Leu	Ser	Tyr	Arq	Ser	Leu	Gln	Pro	Glu	
154	•	•		20	-		•		25	•	_			30			
156	Asn	Phe	Ala	Val	Val	Asp	Leu	Asn	Gln	Met	Arg	Ala	Val	Leu	Val	Asp	
157			35			-		40			•		45			_	
159	Gly	Lys	Ala	Arg	Thr	Ala	Trp	Val	Asp	Ser	Gly	Ala	Gln	Leu	Gly	Glu	
160	_	50		_			55		_		_	60			_		
162	Leu	Tyr	Tyr	Ala	Ile	Ser	Lys	Tyr	Ser	Arg	Thr	Leu	Ala	Phe	Pro	Ala	
163	65					70					75					80	
165	Gly	Val	Cys	Pro	Thr	Ile	Gly	Val	Gly	Gly	Asn	Leu	Ala	Gly	Gly	Gly	
166					85					90					95		
168	Phe	Gly	Met	Leu	Leu	Arg	Lys	Tyr	Gly	Ile	Ala	Ala	Glu	Asn	Val	Ile	
169				100					105					110			
171	Asp	Val	Lys	Leu	Val	Asp	Ala	Asn	Gly	Lys	Leu	His	Asp	Lys	Lys	Ser	
172			115					120					125				
174	Met	Gly	Asp	Asp	His	Phe	Trp	Ala	Val	Arg	Gly	Gly	Gly	Gly	Glu	Ser	
175		130					135					140					
177	Phe	Gly	Ile	Val	Val		Trp	Gln	Val	Lys		Leu	Pro	Val	Pro	Pro	
	145					150	_				155		_	_	_	160	
	Thr	Val	Thr	Ile		Lys	Ile	Pro	Lys		Val	Ser	Glu	Gly		Val	
181	_				165	_		_		170	_		_	_	175	_	
	Asp	Ile				Trp	Gln	Leu			Pro	GIn	Leu		Ala	Asp	
184	_			180					185		_			190		_ =	
	Leu	Met		Arg	Ile	Ile	Ala	Met	GIY	Pro	Lys	Ala		Phe	GIu	Ala	
187		_	195	~7	~ 1	~	_	200	-		_		205	~7		_	
	met		Leu	GTA	Thr	Cys		Thr	ьeu	Thr	Pro		Met	GIn	ser	ьys	
190	Dl	210	03	.	01	N 4	215	77.	Q	77.5 -	~	220	~ 1	N	a	m	
		Pro	GIU	ьeu	GTĀ		Asn	Ala	ser	HIS	_	ASN	GIU	мет	ser	_	
193		~1	0	~7 -	D	230	*** 7	TT# ~	T ~	01	235	7	7	0	T	240	
	тте	GIU	ser	тте		rne	vaı	His	ьeu	-	HIS	Arg	Asp	ser		GIU	
196	O1	7	T	T ~	245	7	7. ~	7	mb	250	T	D***	nl	7 J -	255	m	
TAR	GTĀ	Asp	ьeu	ьeu	ASN	Arg	ASN	Asn	inr	rne	ьys	Pro	rne	ALA	GIU	ıyr	

RAW SEQUENCE LISTING DATE: 02/02/2007 PATENT APPLICATION: US/10/583,093A TIME: 11:53:20

Input Set : A:\MERK3179.APP

199																	
				260					265					270			
201	Lys	Ser	Asp	Tyr	Val	Tyr	Glu	Pro	Phe	Pro	Lys	Ser	Val	Trp	Glu	Gln	
202	-		275	•		•		280			•		285	-			
	Ile	Phe	Glv	Thr	Trp	Leu	Val		Pro	Glv	Ala	Glv	Tle	Met	Ile	Phe	
205		290	1				295	-1-		0-1		300					
	Asp		Туг	Glv	λla	Thr		Sar	Δ 1 =	Thr	Dro		Δla	Δla	Thr	Pro	
	_	FIU	1 Y L	Gry	AIA		116	Ser	AIA	1111		Giu	міа	міа	1111	320	
	305	D	TT -	7	T	310	777	T	Dl	3	315	a 1	m	77 - 7	7		
	Phe	PIO	HIS	Arg	_	GIY	vai	Leu	Pne		тте	GIII	TYL	vai		ıyı	
211	_			_	325			_ _ .		330	_	_	_	_	335		
	Trp	Phe	Ala		GIY	Ala	Gly	Ala		Pro	Leu	Ser	Trp		Lys	Glu	
214	_			340		_			345					350	_	_	
216	Ile	Tyr	Asn	Tyr	Met	Glu	Pro	_	Val	Ser	Lys	Asn	Pro	Arg	Gln	Ala	
217			355					360					365				
219	Tyr	Ala	Asn	Tyr	Arg	Asp	Ile	Asp	Leu	Gly	Arg	Asn	Glu	Val	Val	Asn	
220		370					375			•		380					
222	Gly	Val	Ser	Thr	Tyr	Ser	Ser	Gly	Lys	Val	Trp	Gly	Gln	Lys	Tyr	Phe	
223	385					390					395					400	
225	Lys	Gly	Asn	Phe	Glu	Arg	Leu	Ala	Ile	Thr	Lys	Gly	Lys	Val	Asp	Pro	
226	-	-			405	Ū				410	•	•	•		415		
	Thr	Asp	Tvr	Phe		Asn	Glu										
229			-1-	420	3				•					•			
	<210)> SE	EO TI		. 3												
	33 <210> SEQ ID NO: 3 34 <211> LENGTH: 1503																
	<212				303												
	<213				Tol:	i.ım 7	narai	າກວ									
230				LOPI.	пот.	Lum F	Jere1	1116									
238	- 2226	וים 🗸	וו וייי מי	. 교													
			EATUI		CDC												
239	<221	L> N.	AME/I	KEY:		/10	=021										
239 240	<221 <222	L> NA 2> LO	AME/I	KEY:	(1)	(15	503)										
239 240 242	<221 <222 <400	L> NA 2> LO 0> SE	AME/I OCATI EQUEI	KEY: ION: NCE:	(1). 3						***						4.0
239 240 242 243	<221 <222 <400 tac	L> NA 2> LO 0> SI ttc	AME/I OCATI EQUEI CCG	KEY: ION: NCE: ccg	(1) 3 ccg	gct	gct										48
239 240 242 243 244	<221 <222 <400 tac Tyr	L> NA 2> LO 0> SI ttc	AME/I OCATI EQUEI CCG	KEY: ION: NCE: ccg	(1). 3 ccg Pro	gct	gct			Asp					Leu		48
239 240 242 243 244 245	<221 <222 <400 tac Tyr	l> NA 2> LO 0> SI ttc Phe	AME/I DCATI EQUEI CCG Pro	KEY: ION: NCE: ccg Pro	(1). 3 ccg Pro 5	gct Ala	gct Ala	Lys	Glu	Asp 10	Phe	Leu	Gly	Cys	Leu 15	Val	
239 240 242 243 244 245 247	<221 <222 <400 tac Tyr 1 aaa	L> NA 2> LO D> SI ttc Phe gaa	AME/I OCATI EQUEN CCG Pro	KEY: ION: NCE: ccg Pro	(1) 3 ccg Pro 5 ccg	gct Ala cgt	gct Ala ctg	Lys ttg	Glu tac	Asp 10 gcg	Phe aaa	Leu tcg	Gly tcg	Cys	Leu 15 gcg	Val tat	4 8 96
239 240 242 243 244 245 247 248	<221 <222 <400 tac Tyr	L> NA 2> LO D> SI ttc Phe gaa	AME/I OCATI EQUEN CCG Pro	KEY: ION: ICE: CCG Pro CCG	(1) 3 ccg Pro 5 ccg	gct Ala cgt	gct Ala ctg	Lys ttg	Glu tac Tyr	Asp 10 gcg	Phe aaa	Leu tcg	Gly tcg	Cys ccg Pro	Leu 15 gcg	Val tat	
239 240 242 243 244 245 247 248 249	<221 <222 <400 tac Tyr 1 aaa Lys	l> NZ 2> LO)> SI ttc Phe gaa Glu	AME/I DCATI EQUEN CCG Pro atc Ile	KEY: ION: ICE: CCG Pro CCG Pro	(1) 3 ccg Pro 5 ccg Pro	gct Ala cgt Arg	gct Ala ctg Leu	Lys ttg Leu	Glu tac Tyr 25	Asp 10 gcg Ala	Phe aaa Lys	Leu tcg Ser	Gly tcg Ser	Cys ccg Pro 30	Leu 15 gcg Ala	Val tat Tyr	
239 240 242 243 244 245 247 248 249 251	<221 <222 <400 tac Tyr 1 aaa Lys	L> NZ 2> LO D> SI ttc Phe gaa Glu tca	AME/I DCATI EQUEN ccg Pro atc Ile	KEY: ION: CCG Pro CCG Pro 20 Ctg	(1).3 ccg Pro 5 ccg Pro	gct Ala cgt Arg	gct Ala ctg Leu acc	Lys ttg Leu atc	Glu tac Tyr 25 cgg	Asp 10 gcg Ala aac	Phe aaa Lys tcg	Leu tcg Ser	Gly tcg Ser tgg	Cys ccg Pro 30 tcg	Leu 15 gcg Ala tcg	Val tat Tyr ccg	
239 240 242 243 244 245 247 248 249 251	<221 <222 <400 tac Tyr 1 aaa Lys	L> NZ 2> LO D> SI ttc Phe gaa Glu tca	AME/I DCATI EQUEN ccg Pro atc Ile	KEY: ION: CCG Pro CCG Pro 20 Ctg	(1).3 ccg Pro 5 ccg Pro	gct Ala cgt Arg	gct Ala ctg Leu acc	Lys ttg Leu atc	Glu tac Tyr 25 cgg	Asp 10 gcg Ala aac	Phe aaa Lys tcg	Leu tcg Ser	Gly tcg Ser tgg	Cys ccg Pro 30 tcg	Leu 15 gcg Ala tcg	Val tat Tyr ccg	96
239 240 242 243 244 245 247 248 249 251	<221 <222 <400 tac Tyr 1 aaa Lys	L> NZ 2> LO D> SI ttc Phe gaa Glu tca	AME/I DCATI EQUEN ccg Pro atc Ile	KEY: ION: CCG Pro CCG Pro 20 Ctg	(1).3 ccg Pro 5 ccg Pro	gct Ala cgt Arg	gct Ala ctg Leu acc	Lys ttg Leu atc	Glu tac Tyr 25 cgg	Asp 10 gcg Ala aac	Phe aaa Lys tcg	Leu tcg Ser	Gly tcg Ser tgg	Cys ccg Pro 30 tcg	Leu 15 gcg Ala tcg	Val tat Tyr ccg	96
239 240 242 243 244 245 247 248 249 251 252 253	<221 <222 <400 tac Tyr 1 aaa Lys	l> NA 2> LO D> SE ttc Phe gaa Glu tca Ser	AME/I DCATI EQUEN CCG Pro atc Ile gtc Val 35	KEY: ION: CCG Pro CCG Pro Ctg Leu	(1).3 ccg Pro 5 ccg Pro ggg Gly	gct Ala cgt Arg cag	gct Ala ctg Leu acc Thr	ttg Leu atc Ile 40	Glu tac Tyr 25 cgg Arg	Asp 10 gcg Ala aac Asn	Phe aaa Lys tcg Ser	tcg Ser agg Arg	tcg ser tgg Trp 45	Cys ccg Pro 30 tcg Ser	Leu 15 gcg Ala tcg Ser	Val tat Tyr ccg Pro	96
239 240 242 243 244 245 247 248 249 251 252 253 255	<221 <222 <400 tac Tyr 1 aaa Lys ccc Pro	L> NA 2> LO D> SI ttc Phe gaa Glu tca Ser aac	AME/I DCATI EQUEN CCG Pro atc Ile gtc Val 35 gtg	XEY: ION: ICE: CCG Pro CCG Pro 20 Ctg Leu aag	(1).3 ccg Pro 5 ccg Pro ggg Gly ccg	gct Ala cgt Arg cag Gln	gct Ala ctg Leu acc Thr	ttg Leu atc Ile 40 atc	tac Tyr 25 cgg Arg	Asp 10 gcg Ala aac Asn	Phe aaa Lys tcg ser ccc	tcg Ser agg Arg	tcg ser tgg Trp 45	Cys ccg Pro 30 tcg ser	Leu 15 gcg Ala tcg ser	val tat Tyr ccg Pro	96 144
239 240 242 243 244 245 247 248 249 251 252 253 255	<221 <222 <400 tac Tyr 1 aaa Lys ccc Pro	L> NA 2> LO D> SI ttc Phe gaa Glu tca Ser aac	AME/I DCATI EQUEN CCG Pro atc Ile gtc Val 35 gtg	XEY: ION: ICE: CCG Pro CCG Pro 20 Ctg Leu aag	(1).3 ccg Pro 5 ccg Pro ggg Gly ccg	gct Ala cgt Arg cag Gln	gct Ala ctg Leu acc Thr	ttg Leu atc Ile 40 atc	tac Tyr 25 cgg Arg	Asp 10 gcg Ala aac Asn	Phe aaa Lys tcg ser ccc	tcg Ser agg Arg	tcg ser tgg Trp 45	Cys ccg Pro 30 tcg ser	Leu 15 gcg Ala tcg ser	val tat Tyr ccg Pro	96 144
239 240 242 243 244 245 247 248 251 252 253 255 256 257	<221 <222 <400 tac Tyr 1 aaa Lys ccc Pro gac Asp	L> NZ 2> LC 2> LC 0> SE ttc Phe gaa Glu tca Ser aac Asn 50	AME/IDCATION COMMENT OF THE COMENT OF THE COMMENT OF THE COMMENT OF THE COMMENT OF THE COMMENT O	XEY: ION: ICE: CCG Pro CCG Pro 20 Ctg Leu aag Lys	(1) 3 ccg Pro 5 ccg Pro ggg Gly ccg Pro	gct Ala cgt Arg cag Gln ctc Leu	gct Ala ctg Leu acc Thr tac Tyr 55	ttg Leu atc Ile 40 atc Ile	Glu tac Tyr 25 cgg Arg atc Ile	Asp 10 gcg Ala aac Asn acc	Phe aaa Lys tcg ser ccc Pro	tcg ser agg Arg acc Thr	tcg Ser tgg Trp 45 aac Asn	Cys ccg Pro 30 tcg ser gtc Val	Leu 15 gcg Ala tcg ser tcc	Val tat Tyr ccg Pro cac	96 144
239 240 242 243 244 245 247 248 251 252 253 255 256 257 259	<221 <222 <400 tac Tyr 1 aaa Lys ccc Pro gac Asp	L> NZ 2> LC 2> LC D> SE ttc Phe gaa Glu tca Ser aac Asn cag	AME/IDCATION COMMENT OF THE COMENT OF THE COMMENT OF THE COMMENT OF THE COMMENT OF THE COMMENT O	CEY: ION: CCG Pro CCG Pro 20 Ctg Leu aag Lys	(1) 3 ccg Pro 5 ccg Pro ggg Gly ccg Pro	gct Ala cgt Arg cag Gln ctc Leu	gct Ala ctg Leu acc Thr tac Tyr 55	ttg Leu atc Ile 40 atc Ile	Glu tac Tyr 25 cgg Arg atc Ile	Asp 10 gcg Ala aac Asn acc Thr	Phe aaa Lys tcg ser ccc Pro tac	tcg ser agg Arg acc Thr 60 gac	tcg ser tgg Trp 45 aac Asn	Cys ccg Pro 30 tcg Ser gtc Val	Leu 15 gcg Ala tcg Ser tcc Ser	Val tat Tyr ccg Pro cac His	96 144 192
239 240 242 243 244 245 247 248 251 252 253 255 256 257 259	<221 <222 <400 tac Tyr 1 aaa Lys ccc Pro gac Asp	L> NZ 2> LC 2> LC D> SE ttc Phe gaa Glu tca Ser aac Asn cag	AME/IDCATION COMMENT OF THE COMENT OF THE COMMENT OF THE COMMENT OF THE COMMENT OF THE COMMENT O	CEY: ION: CCG Pro CCG Pro 20 Ctg Leu aag Lys	(1) 3 ccg Pro 5 ccg Pro ggg Gly ccg Pro	gct Ala cgt Arg cag Gln ctc Leu	gct Ala ctg Leu acc Thr tac Tyr 55	ttg Leu atc Ile 40 atc Ile	Glu tac Tyr 25 cgg Arg atc Ile	Asp 10 gcg Ala aac Asn acc Thr	Phe aaa Lys tcg ser ccc Pro tac	tcg ser agg Arg acc Thr 60 gac	tcg ser tgg Trp 45 aac Asn	Cys ccg Pro 30 tcg Ser gtc Val	Leu 15 gcg Ala tcg Ser tcc Ser	Val tat Tyr ccg Pro cac His	96 144 192
239 240 242 243 244 245 247 248 249 251 252 253 255 256 257 259 260 261	<221 <222 <400 tac Tyr 1 aaa Lys ccc Pro gac Asp atc Ile 65	L> NZ 2> LC 2> LC 2> LC 2> SE 4 C 4 C 4 C 4 C 4 C 4 C 4 C 4 C	AME/IDCATION COMMENT OF THE COMENT OF THE COMMENT OF THE COMMENT OF THE COMMENT OF THE COMMENT O	CEY: ION: CCG Pro CCG Pro 20 Ctg Leu aag Lys GCC Ala	(1) 3 ccg Pro 5 ccg Pro ggg Gly ccg Pro gtg Val	gct Ala cgt Arg cag Gln ctc Leu gtg Val 70	gct Ala ctg Leu acc Thr tac Tyr 55 tgc Cys	ttg Leu atc Ile 40 atc Ile ggc Gly	Glu tac Tyr 25 cgg Arg atc Ile cgc Arg	Asp 10 gcg Ala aac Asn acc Thr	Phe aaa Lys tcg ser ccc Pro tac Tyr 75	teu tcg ser agg Arg acc Thr 60 gac Asp	Gly tcg ser tgg Trp 45 aac Asn gtc Val	Cys ccg Pro 30 tcg Ser gtc Val cgc Arg	Leu 15 gcg Ala tcg Ser tcc Ser atc	Val tat Tyr ccg Pro cac His cgc Arg 80	96 144 192 240
239 240 242 243 244 245 247 248 249 251 252 253 256 257 259 260 261 263	<221 <222 <400 tac Tyr 1 aaa Lys ccc Pro gac Asp atc Ile 65 gta	L> NZ 2> LC 2> LC 2> LC 2> SE 4 CC 4	AME/IDCATION COMPANY OF THE PROPERTY OF THE PR	CEY: ION: CCG Pro CCG Pro 20 Ctg Leu aag Lys GCC Ala	(1) 3 ccg Pro 5 ccg Pro ggg Gly ccg Pro gtg Val	gct Ala cgt Arg cag Gln ctc Leu gtg Val 70 cac	gct Ala ctg Leu acc Thr tac Tyr 55 tgc Cys	ttg Leu atc Ile 40 atc Ile ggc Gly	Glu tac Tyr 25 cgg Arg atc Ile cgc Arg	Asp 10 gcg Ala aac Asn acc Thr cgt Arg	Phe aaa Lys tcg ser ccc Pro tac Tyr 75 ctc	teu teg ser agg Arg acc Thr 60 gac Asp	Gly tcg ser tgg Trp 45 aac Asn gtc Val	Cys ccg Pro 30 tcg Ser gtc Val cgc Arg	Leu 15 gcg Ala tcg ser tcc ser atc Ile tcc	Val tat Tyr ccg Pro cac His cgc Arg 80 ctg	96 144 192
239 240 242 243 244 245 247 248 249 251 252 253 255 256 257 260 261 263 264	<221 <222 <400 tac Tyr 1 aaa Lys ccc Pro gac Asp atc Ile 65	L> NZ 2> LC 2> LC 2> LC 2> SE 4 CC 4	AME/IDCATION COMPANY OF THE PROPERTY OF THE PR	CEY: ION: CCG Pro CCG Pro 20 Ctg Leu aag Lys GCC Ala	(1) 3 ccg Pro 5 ccg Pro ggg Gly ccg Pro gtg Val ggg Gly	gct Ala cgt Arg cag Gln ctc Leu gtg Val 70 cac	gct Ala ctg Leu acc Thr tac Tyr 55 tgc Cys	ttg Leu atc Ile 40 atc Ile ggc Gly	Glu tac Tyr 25 cgg Arg atc Ile cgc Arg	Asp 10 gcg Ala aac Asn acc Thr cgt Arg	Phe aaa Lys tcg ser ccc Pro tac Tyr 75 ctc	teu teg ser agg Arg acc Thr 60 gac Asp	Gly tcg ser tgg Trp 45 aac Asn gtc Val	Cys ccg Pro 30 tcg Ser gtc Val cgc Arg	Leu 15 gcg Ala tcg Ser tcc Ser atc Ile tcc	Val tat Tyr ccg Pro cac His cgc Arg 80 ctg	96 144 192 240
239 240 242 243 244 245 247 248 251 252 253 255 256 257 260 261 263 264 265	<221 <222 <400 tac Tyr 1 aaa Lys ccc Pro gac Asp atc Ile 65 gta Val	L> NZ 2> LC 2> LC 2> LC 2> SE 2 E 2 E 2 E 2 E 2 E 2 E 2 E 2	AME/IDCATION CATE OF C	CEY: ION: CCG Pro CCG Pro 20 Ctg Leu aag Lys GCC Ala GGC	(1) 3 ccg Pro 5 ccg Pro ggg Gly ccg Pro gtg Val ggg Gly 85	gct Ala cgt Arg cag Gln ctc Leu gtg Val 70 cac His	gct Ala ctg Leu acc Thr tac Tyr 55 tgc Cys gac Asp	ttg Leu atc Ile 40 atc Ile ggc Gly tac	Glu tac Tyr 25 cgg Arg atc Ile cgc Arg gag Glu	Asp 10 gcg Ala aac Asn acc Thr cgt Arg ggc Gly 90	Phe aaa Lys tcg Ser ccc Pro tac Tyr 75 ctc Leu	tcg ser agg Arg acc Thr 60 gac Asp	tcg ser tgg Trp 45 aac Asn gtc Val tac	Cys ccg Pro 30 tcg Ser gtc Val cgc Arg	Leu 15 gcg Ala tcg ser tcc ser atc Ile tcc ser 95	tat Tyr ccg Pro cac His cgc Arg 80 ctg Leu	96 144 192 240 288
239 240 242 243 244 245 247 248 249 251 252 253 255 256 257 260 261 263 264 265 267	<221 <222 <400 tac Tyr 1 aaa Lys ccc Pro gac Asp atc Ile 65 gta	L> NZ 2> LC 2> LC 2> LC 2> LC Phe gaa Glu tca Ser aac Asn 50 cag Gln cgc Arg	AME/IDCATION CATE OF C	CEY: ION: CCG Pro CCG Pro 20 Ctg Leu aag Lys GCC Ala GGC Gly aac	(1) 3 ccg Pro 5 ccg Pro ggg Gly ccg Pro gtg Val ggg Gly 85 ttc	gct Ala cgt Arg cag Gln ctc Leu gtg Val 70 cac His	gct Ala ctg Leu acc Thr tac Tyr 55 tgc Cys gac Asp	ttg Leu atc Ile 40 atc Ile ggc Gly tac Tyr	Glu tac Tyr 25 cgg Arg atc Ile cgc Arg gag Glu gac	Asp 10 gcg Ala aac Asn acc Thr cgt Arg ggc Gly 90 ctc	Phe aaa Lys tcg ser ccc Pro tac Tyr 75 ctc Leu aac	teu tcg ser agg Arg acc Thr 60 gac Asp tcg ser cag	cly tcg ser tgg Trp 45 aac Asn gtc Val tac Tyr atg	Cys ccg Pro 30 tcg Ser gtc Val cgc Arg cgg	Leu 15 gcg Ala tcg ser tcc Ser atc Ile tcc ser 95 gcg	Val tat Tyr ccg Pro cac His cgc Arg 80 ctg Leu gtg	96 144 192 240

RAW SEQUENCE LISTING DATE: 02/02/2007 PATENT APPLICATION: US/10/583,093A TIME: 11:53:20

Input Set : A:\MERK3179.APP

260				100					3.05					110			
269		~+~	~~~	100		~~~	~~~		105	.		~~~	+ a a	110	~~~	a.a	384
												gac					304
	Leu	vai	_	GIY	ьуѕ	Ата	Arg		Ата	Trp	vai	Asp		GIA	Ala	GIII	
273			115		L			120	.				125			:	422
							-			_		agc		_	_	-	432
		_	GIU	ьeu	Tyr	ıyr		11e	ser	ьys	Tyr	Ser	Arg	Thr	Leu	Ala	
277		130					135					140					400
												ggc					480
		Pro	Ala	GIY	vaı	_	Pro	Thr	тте	GIY		Gly	GIY	Asn	ьeu		
	145					150					155					160	500
						_	_	_	_	_		ggc		-	_		528
	GIY	GIY	GIY	Pne	_	met	Leu	Leu	Arg	_	ıyr	Gly	тте	Ala		GIU	
285					165					170					175		556
												ggc					576
	Asn	vaı	тте		vaı	ьуs	ьeu	vai		Ala	Asn	Gly	ьуs		HIS	Asp	
289				180					185					190			604
	. –	_		_		_	_				_	gtg					624
	гàг	гуѕ		мет	GIY	Asp	Asp		Pne	Trp	Ата	Val	_	GIY	GIY	GIY	
293			195			_ 4		200					205				680
												gtg					672
	GIY		ser	Pne	GLY	ше		vai	ser	Trp	GIN	Val	гуs	ьеи	ьeu	Pro	
297		210					215					220					500
	-			_					_			aag		_	_		720
		Pro	Pro	Thr	vai		шe	Pne	гÀг	шe		Lys	ser	vai	ser		
	225					230					235					240	760
												gtc					768
	GIY	Ala	vai	Asp		ше	Asn	ьуѕ	Trp		Leu	Val	Ата	Pro		Leu	
305					245					250		~~~		~	255		016
												999					816
309	PIO	Ala	Asp	260	Mec	TIE	Arg	TTE		AIa	Mec	Gly	PIO	дуS 270	Ата	TILL	
		~~~	~~~		+	a+ a	~~~		265		200	a+ a	200		2+~	250	064
												ctg Leu					864
313	FILE	GIU	275	Mec	TYL	пец	GIY	280	Cys	цуз	1111	Deu	285	FIO	Mec	Mec	
	a2a	300		++a	000	a2a	att		ata	220	~~~	tcg		taa	220	asa	912
	_	_	_						_		-	Ser		_			312
317	GIII	290	пуs	FIIC	PIO	Giu	295	GIA	Mec	ASII	AIA	300	птэ	Cys	ASII	Giu	
	2+4		+~~	ata	~~~	+ 00		000	++0	ata	<b>a</b> aa	ctc	~~~	ast	300	ant.	960
												Leu					300
	305	261	пр	116	Giu	310	116	PIO	FIIC	vai	315	neu	Gry	1113	Arg	320	
		ata	asa	~~~	asa.		ata	220	aaa	220		acc	tta	224	000		1008
		_			-												1000
325	PET	neu	GIU	Gry	325	μ <del>c</del> u	⊥eu	WOII	AT 9	330	UOII	Thr	FIIG	nys	335	£ 11C	
	~~~	~~~	+ 2.0	222		~~~	+ > a	at a	+ 2.0		003	ttc	000	224		ata	1056
					_	_		_				Phe		_	_		1020
329	nıa	GIU	TÄT	цуS 340	SET	wah	тÀТ	vaı	345	GIU	LIO	FIIE	FIO	350	SEL	val	
	+~~	~~~	asa		++~	~~~	200	+~~		at~	224	act	~~+		aaa	`a++	1104
												cct Pro					1104
	тър	GIU	355	116	LIIG	GIY	TIIT	_	Leu	val	пур	FIO	365	ATA	GIY	116	
333			333					360					303				

RAW SEQUENCE LISTING ERROR SUMMARY
PATENT APPLICATION: US/10/583,093A

DATE: 02/02/2007 TIME: 11:53:21

Input Set : A:\MERK3179.APP

Output Set: N:\CRF4\02022007\J583093A.raw

Please Note:

Use of n and/or Xaa have been detected in the Sequence Listing. Please review the Sequence Listing to ensure that a corresponding explanation is presented in the <220> to <223> fields of each sequence which presents at least one n or Xaa.

Seq#:17; Xaa Pos. 8

VERIFICATION SUMMARY

DATE: 02/02/2007

PATENT APPLICATION: US/10/583,093A

TIME: 11:53:21

Input Set : A:\MERK3179.APP

Output Set: N:\CRF4\02022007\J583093A.raw

L:777 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:17 after pos.:0